

ASSIGNMENT

1. Find all first and second order partial derivatives w.r.t. x and y of $u = x^2 + 2xy^2 + x^3y + y^3 + 5$.
2. If $u = x^2yz - 4y^2z^2 + 2xz^3$, find $xu_x + yu_y + zu_z$.
3. If $u = (1-2xy + y^2)^{-1/2}$, prove that $xu_x - yu_y = y^2u^3$.
4. Find f_{xx} and f_{xy} at the point $(1,2)$ for $f(x,y) = x^2 + 3xy + y - 1$.
5. Find total derivative of $u = 2x^2 + 12xy - 7y^2$.
6. Find total derivative of $z = 8x_1 + 10x_2 - x_1^2 - x_2^2$.